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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,876	02/28/2002	Wen-Chih Ho	U 013892-6	7275

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[REDACTED] EXAMINER

COLON, GERMAN

ART UNIT	PAPER NUMBER
	2879

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,876	HO, WEN-CHIH	
	Examiner	Art Unit	
	German Colón	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-22 is/are rejected.
 7) Claim(s) 1 is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1.) Certified copies of the priority documents have been received.
 2.) Certified copies of the priority documents have been received in Application No. ____.
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Preliminary Amendment, filed on April 15, 2002, has been entered and acknowledged by the Examiner.

The proposed drawing amendment has been acknowledged and approved by the Examiner.

Claim Objections

2. Claim 1 is objected to because of the following informalities:

Claim 1 recites the limitation “a light-mixing layer for absorbing *a light source*”. The Examiner suggests rewording the claim such as “... for absorbing *light emitted* from a light source”

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the compound SiO_x, however, no range or definition for x is provided. For the purpose of examination ‘x’ is consider as any number.

Regarding claim 20, claim 20 is rejected over the reasons stated in the rejection of claim 4.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4, 6-9, 11-16 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by McNulty et al. (US 2002/0180351).

Regarding claim 1, McNulty discloses a light-mixing layer comprising: light-scattering particles **28** for scattering the light emitted from the light source (see paragraph [0022] line 6); phosphor particles **26** for converting a portion of the light originating from the light source into another wavelength of light ; and (see paragraph [0022] lines 4-6); and diffuser particles for mixing the light emitted from the light-scattering particles and the phosphor particles;

wherein the light-scattering particles, phosphor particles and diffuser particles are arranged in a particle-interlaced order.

The Examiner notes that the light-scattering particles **28** comprise light-scattering particles and diffuser particles, such as glass and SiO (see Table 1 and claim 2).

Regarding claim 2, McNulty discloses a light-mixing layer having light-scattering particles, phosphor particles and diffuser particles. The method of making the product, i.e. by

printing process, dispersion, spin, evaporation, or sputtering, is not germane to the issue of patentability of the product itself; therefore, the limitation of “the light-scattering particles, diffuser particles and phosphor particles being made by a process...” has not been given patentable weight.

Regarding claim 3, McNulty discloses the light-scattering particles being made of glass (see Table 1 and claim 2).

Referring to claim 4, McNulty discloses the diffuser particles being made of SiO₂ and SiO₂.

Referring to claims 6-8, claims 6-8 are rejected over the reasons stated in the rejection of claim 2.

Referring to claim 9, McNulty discloses a light-mixing layer keeping a distance from the light source, and absorbing light emitted from the light source by reflection (see paragraph [0022] lines 3 and 39-42).

Regarding claim 11, McNulty discloses an LED comprising a chip 20, a chip cup 24, electrodes and a transparent encapsulant, characterized in that the LED component includes a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles, wherein said particles are arranged in particle-interlaced order.

Regarding claims 12-14, claims 12-14 are rejected over the reasons stated in the rejection of claim 2.

Regarding claim 15, McNulty discloses a light-mixing layer keeping a distance from the light source, and absorbing light emitted from the light source by reflection (see paragraph [0022] lines 3 and 39-42).

Referring to claim 16, McNulty discloses a method of making a light-mixing layer comprising:

providing a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles;

utilizing the light-scattering particles to scatter the light emitted from the light source (see paragraph [0022] line 6);

utilizing the phosphor particles to convert a portion of the light generating from the light source into another wavelength light (see paragraph [0022] lines 4-6); and

utilizing the diffuser particles to mix the light emitted from the light-scattering particles and the phosphor particles.

Referring to claim 19, McNulty discloses the light-scattering particles being made of glass (see Table 1 and claim 2).

Referring to claim 20, McNulty discloses the diffuser particles being made of SiO₂ and SiO₂.

7. Claims 1, 5, 11, 16 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Höhn et al. (US 6,245,259).

Regarding claim 1, Höhn discloses a light-mixing layer 5 comprising: light-scattering particles for scattering the light emitted from the light source (see Col. 9, line 32); phosphor particles for converting a portion of the light originating from the light source into another wavelength of light ; and (see Col. 6, lines 44-45, and Col. 8, line 17); and

diffuser particles for mixing the light emitted from the light-scattering particles and the phosphor particles (see Col. 9, lines 34-35);

wherein the light-scattering particles, phosphor particles and diffuser particles are arranged in a particle-interlaced order.

Regarding claim 5, Höhn discloses the phosphor particles being made of inorganic phosphor matter (see Col. 8, line 17).

Regarding claim 11, Höhn discloses an LED comprising a chip 1, a chip cup 16, electrodes 2,3 and a transparent encapsulant 10, characterized in that the LED component includes a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles, wherein said particles are arranged in particle-interlaced order (see Figs 1-4).

Referring to claim 16, Höhn discloses a method of making a light-mixing layer comprising:

providing a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles;

utilizing the light-scattering particles to scatter the light emitted from the light source (see Col. 9, line 32);

utilizing the phosphor particles to convert a portion of the light generating from the light source into another wavelength light (see Col. 6, lines 44-45, and Col. 8, line 17); and

utilizing the diffuser particles to mix the light emitted from the light-scattering particles and the phosphor particles (see Col. 9, lines 34-35).

Referring to claim 21, Höhn discloses the phosphor particles being made of inorganic phosphor matter (see Col. 8, line 17).

8. Claims 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Duggal et al. (US 6,294,800).

Referring to claim 16, Duggal discloses a method of making a light-mixing layer comprising:

providing a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles;

utilizing the light-scattering particles to scatter the light emitted from the light source (see Col. 7, line 65);

utilizing the phosphor particles to convert a portion of the light generating from the light source into another wavelength light (see Col. 7, lines 42); and

utilizing the diffuser particles to mix the light emitted from the light-scattering particles and the phosphor particles (see Col. 8, line 2).

The Examiner notes that Duggal discloses TiO₂ (see Col. 8, line 2) as a scattering particle, however, it is also a diffuser particle (see for example US 6,245,259 to Höhn et al., Col. 9, lines 33-34).

Regarding claim 17, Duggal discloses the light-mixing layer being made by an evaporation method (see Col. 7, lines 42-48).

9. Claims 16 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Duthaler et al. (US 6,413,790).

Referring to claim 16, Duthaler discloses a method of making a light-mixing layer comprising: providing a light-mixing layer including light-scattering particles (see Col. 17, line 1), phosphor particles (see Col. 17, lines 1-2 and 6-7) and diffuser particles (see Col. 17, line 5).

Referring to claim 18, Duthaler discloses the arrangement being dependent on a level of gravitation (see Col. 17, lines 19-21).

10. Claims 1, 10, 16 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Mizuno et al. (US 6,228,543).

Regarding claim 1, Mizuno discloses a layer comprising: light-scattering particles (see Col. 5, line 42), phosphor particles (see Col. 5, line 40) and diffuser particles (see Col. 5, line 42).

Regarding claim 10, Mizuno discloses the light-scattering particles occupying 0 to 50 wt% (see Col. 5, line 48), the phosphor occupying 20 to 45 wt% (see Col. 5, lines 51-52) and 0 to 50 wt% of diffuser particles (see Col. 5, line 48).

Referring to claim 16, Mizuno discloses a method of making a light-mixing layer comprising: providing a light-mixing layer including light-scattering particles (see Col. 5, line 42), phosphor particles (see Col. 5, line 40) and diffuser particles (see Col. 5, line 48).

Referring to claim 10, Mizuno discloses the light-scattering particles occupying 0 to 50 wt% (see Col. 5, line 48), the phosphor occupying 20 to 45 wt% (see Col. 5, lines 51-52) and 0 to 50 wt% of diffuser particles (see Col. 5, line 48).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 703-305-5987. The examiner can normally be reached on Monday thru Friday, from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 703-305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

gc
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July 11, 2003

[Signature]
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